

ATRI Article – Aquatic Therapy for Lymphedema from Breast Cancer
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I know that discussing cancer statistics can suck the joy from a room, but stay with me for a moment – there is good news. There are also clear opportunities for you to make a difference in peoples' lives. The American Cancer Society (www.cancer.org) lists detailed research data for cancer risks, diagnosis, deaths, and survival rates. Other than skin carcinoma, breast cancer is the most commonly diagnosed cancer in women. In 2009, nearly 200,000 women in the U.S.A. were diagnosed. Over 40,000 of them are expected to die due to the disease. The good news is, *160,000 who were diagnosed will survive!* They, and their 'survivor sisters' will be living fulfilled lives. One in eight U.S. women will have this disease in her lifetime. If you pose the following question to a gathering of mature women, "Put your hand up if you have had breast cancer", it might look like a group stretch!

This article will discuss issues specific to aquatic rehab exercises for people who have had breast cancer. Brachial lymphedema is a key focus. In my experience, lymphedema seems to be 'under the radar' for many physicians, who are dealing with surgery and adjuvant therapies. Often diagnosis and treatment of lymphedema occur in the therapeutic setting, rather than the doctor's office. The intention of this article is to promote awareness amongst aquatic therapists, and a healthy, positive outcome for breast cancer patients.

Risk factors for breast cancer include many things we cannot change (advancing age, family history, breast density, health history related to age of menarche, pregnancy and menopause). Risk factors for breast cancer related lymphedema (BCRL) include obesity, poor shoulder girdle mobility, the nature / extent of surgery, radiation, infection (if any) and number of cancer affected lymph nodes. Sentinel node biopsy may reduce the number of BCRL cases, however, radiation to the axilla is still a threat. Patients may describe symptoms of tightness, discomfort, a feeling of heaviness or "congestion", hyper- or hypo-sensitivity, swollen digits, weakness, and loss of function. Swelling can also occur across the chest, in the axilla and across the back. Self-esteem and quality of life are affected. It is important to note that lymphedema may appear during or immediately following treatment. It can also

appear *years* later. Sometimes there are obvious reasons (trauma / infection). Sometimes there is no obvious reason. Effects of radiation can increase with time. Once it occurs, BCRL is a chronic condition requiring life-long treatment and self-care.

Specific benefits of aquatic treatment for this population:

Complex physical therapy (CPT) is the treatment of choice for BCRL. A variety of techniques are used to decrease limb volume while increasing comfort and function. Massage, taping and compression sleeves are usually part of this regime. CPT works well, but is a finite treatment, relying on patients to learn and continue best practices when they complete treatment. What is needed is inexpensive, enjoyable, effective long term activity that will reduce edema, while improving limb function, BMI, self-esteem and general health.

Welcome to the warm pool! Adherence is a key factor in the long term success of any exercise intervention. Dorit Tidhar (2009) found adherence to aquatic lymphatic treatment (ALT) was significantly higher than a control group participating in self-management therapy. She concludes, "ALT was found to be a safe method, with high adherence, in treating women who suffer from mild to moderate lymphedema. A significant immediate and insignificant long-term effect on limb volume was noted." (Mild lymphedema is classed as $\leq 20\%$ greater volume than the unaffected arm; moderate lymphedema is 20 – 40% greater volume).

In addition to all the well-documented benefits *everyone* gets from regular exercise, an active lifestyle lowers the likelihood of breast cancer re-occurrence. Females of advancing age are the demographic most likely to have had, or to get breast cancer (again). Because of our age, many of us will also have osteopenia / osteoporosis, and osteo arthritis. Along with the much-loved hot flashes, menopause increases risk of heart disease and seems to come with a mustache and a free spare tire for our middles. We *need* regular, enjoyable, vigorous exercise. We will *do* exercise we enjoy.

The pool offers an ideal environment for comfortable, hot-flash friendly, joint-cushioned, muscle-building exercise. Vertical aquatic exercise is one-stop shopping for healthier hearts, stronger muscles and

bones, better BMI, and decreased risk of breast cancer (re)occurrence. But that's not the best part! Vertical aquatic exercise creates a pressure gradient on vertically submerged limbs. When the arm is vertically immersed in water, hydrostatic pressure at the fingers is greater than the pressure provided by a compression sleeve (immersion pressure: above 40 mmHg; compression sleeve: 20 to 30 mmHg).

Hydrostatic pressure and the turbulent massage of the water on the skin and lymph nodes, improves lymphatic flow, reducing swelling in the affected arm, as well as the axilla, chest wall and back (areas not resolved with a compression sleeve). Whether treating lymphedema, optimizing shoulder girdle function, or trying to strengthen the arms without provoking arm swelling, vertical immersion provides a range of important benefits.

Tidhar's research points out that simple immersion is not enough – effects are temporary. To improve results, she recommends a series of exercises to open central lymphatic channels, mobilize the shoulder girdle, use the muscle pumps of the arm, and take advantage of the hydrostatic pressure gradient due to vertical immersion. Here is a series of exercises from her research.

Recommended Exercise Series

Recommended pool temperature: 31°C to 33°C. (88°F – 92°F)

Depth adequate for comfortable shoulder immersion.

Aquatic Lymphatic Therapy – The Tidhar Method for BCRL Proximal Activities:

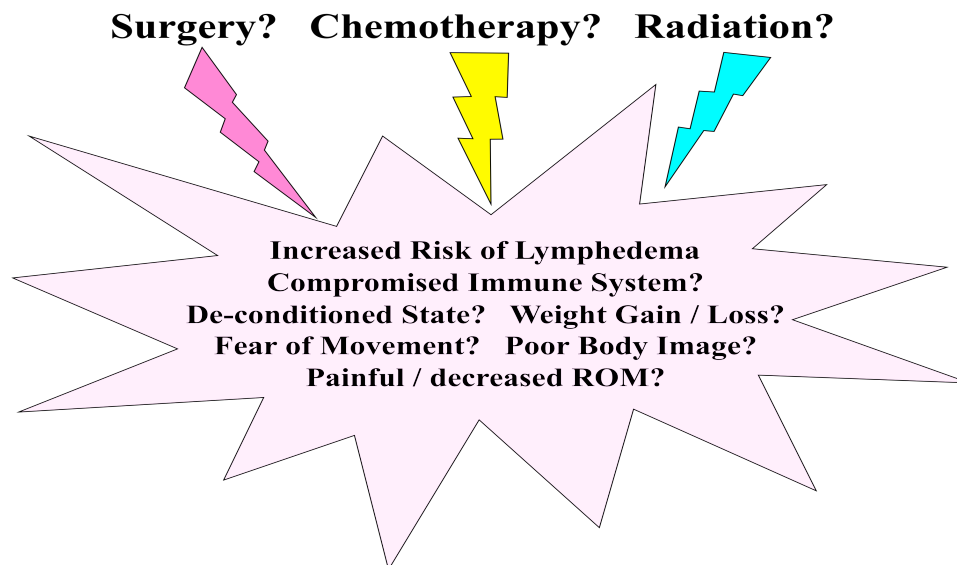
- Deep breathing; shoulder girdle mobilization; lymph node clearance (self, therapist, or partner massage, directed by therapist); buoyancy supported mobilization of neck, shoulder, and scapular muscles in horizontal alignment (resting in and supported by the water).
- Self massage and massaging movements (using turbulent currents). Start with proximal lymphotomes. Proximal first, then distal to proximal. Work from affected areas toward unaffected areas, to create this direction of lymphatic flow.

Distal Activities:

- Use vertical positioning of the arm to maximize the pressure gradient.
- Move the hands, wrists and elbows. Open and close the fist.
- Self-massage: proximal first, then distal to proximal.
- Conclude the session with deep breathing.

Aquatic exercise considerations for this population:

It is important to identify and address the medical concerns and special needs of breast cancer survivors in your pool. Each person will have a unique story related to her cancer treatment. Surgery, chemotherapy, radiation and hormone therapy may all be factors. The extent of surgery, the type of chemo (and response to it), and the after-effects of radiation will be different with each individual. Some people maintain 'normal' appearance and movement capability throughout their year of treatment (if there are no complications or metastases). Others will be flattened (in more ways than one!), fatigued, faded and fattened (many will *gain* weight on chemo).



Health issues and responses vary widely. Research is telling us that movement – even during treatment – is helpful. Walking and other gentle forms of exercise are appropriate, healthy ways to improve quality of life.

Contraindications for pool exercise include the following – get medical clearance if you are unsure:

- Open skin – surgical wounds, pic-lines, radiation effects
- Very low white cell counts (increased risk of infection)
- Recent radiation – skin takes time to recover, and resistance is low.

Clinical time is limited, so it is wise to be able to refer your patients to the best aqua fitness program in your region, with knowledgeable leaders / trainers. Javex jugs / huge aqua dumbbells are out. Postural coaching, good biomechanics, and limbs vertically submerged during exercise are IN. Consider creating a competitive edge for your aquatic therapy practice by catering to this population. Your therapeutic team might offer the services of a massage therapist specializing in MLD; an exercise physiologist / kinesiologist supervising small group pool and land based exercise appropriate for people with BCRL issues; someone who has been trained to kinesiotape for lymphedema; referral services for sleeve fittings, prosthetic bras; a support group for survivors. Consider sponsoring a survivor's dragon boat team in your region!

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